

REMARKS

Claims 1, 3-8, 12 and 13 remain in the application unchanged. Claims 2, 9-11 and 14 were previously canceled. Reexamination and reconsideration of the claims are respectfully requested.

Summary of Office Action

In the final Office Action dated August 7, 2007, Claims 1 and 3-7 were rejected under 35 U.S.C. §103(a) as being unpatentable over Uemiya et al., U.S. Patent No. 4,762,381 (hereinafter "Uemiya et al. '381") in view of Butterworth et al., U.S. Patent No. 5,847,507 (hereinafter "Butterworth et al. '507"). Applicants believe that these claims are allowable over the cited references for the reasons discussed below.

Claims 8, 12 and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Son, U.S. Patent No. 6,741,234 (hereinafter "Son '234") in view of Uemiya et al. '381 and Butterworth et al. '507. Applicants believe that these claims are allowable over the cited references for the reasons discussed below.

Legal Precedent

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). In addressing obviousness determinations under 35 U.S.C. §103, the Supreme Court in *KSR International Co. v. Teleflex Inc.*, No. 04-1350 (April 30, 2007), reaffirmed many of its precedents relating to obviousness including its holding in

Graham v. John Deere Co., 383 U.S. 1 (1966). In *Graham*, the Court set out an objective analysis for applying the statutory language of §103:

Under §103, the scope and content of the prior art are to be determined, differences between the prior art and the claims at issue are to be ascertained, and the level of ordinary skill in the pertinent art are to be resolved. Against this background the obviousness or non-obviousness of the subject matter is to be determined. Such secondary considerations as commercial success, long-felt but unresolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. *KSR, slip op.* at 2 (citing *Graham*, 383 U.S. at 17-18).

In *KSR*, the Court also reaffirmed that “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *Id.* at 14. In this regard, the *KSR* Court stated that “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does … because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *Id.* at 14-15. Traditionally, to establish a *prima facie* case of obviousness, the CCPA and the Federal Circuit have required that the prior art not only include all of the claimed elements, but also some teaching, suggestion, or motivation to combine the known elements in the same manner set forth in the claim at issue. See, e.g., *ASC Hospital Systems Inc. v. Montefiore Hospital*, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984) (holding that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination.); *In re Mills*, 16 U.S.P.Q.2d 1430, 1433 (Fed. Cir. 1990) (holding that the mere fact that references can be combined or modified does not

render the resultant combination obvious unless the prior art also suggests the desirability of the combination). In *KSR*, the Court noted that the demonstration of a teaching, suggestion, or motivation to combine provides a “helpful insight” in determining whether claimed subject matter is obvious. *KSR*, *slip op.* at 14. However, the Court rejected a *rigid* application of the “TSM” test. *Id.* at 11. In this regard, the Court stated:

The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and explicit content of issued patents. The diversity of inventive pursuit and of modern technology counsels against limiting the analysis in this way. In many fields it may be that there is little discussion of obvious techniques or combinations, and it often may be the case that market demand, rather than scientific literature, will drive design trends. *Id.* at 15.

In other words, the *KSR* Court rejected a rigid application of the TSM test which requires that a teaching, suggestion or motivation to combine elements in a particular manner must be explicitly found in the cited prior art. Instead, the *KSR* Court favored a more expansive view of the sources of evidence that may be considered in determining an apparent reason to combine known elements by stating:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed in the patent at issue. *Id.* at 14.

The *KSR* Court also noted that there is not necessarily an inconsistency between the idea underlying the TSM test and the *Graham* analysis, and it further stated that the broader application of the TSM test found in certain Federal Circuit decisions appears to be consistent with *Graham*. *Id.* at 17-18 (citing *DyStar*

Textilfarben GmbH and Co. v. C.H. Patrick Co., 464 F.3d 1356, 1367 (2006) (“Our suggestion test is in actuality quite flexible and not only permits but requires consideration of common knowledge and common sense”); *Alza Corp. v. Mylan Labs, Inc.*, 464 F.3d 1286, 1291 (2006) (“There is flexibility in our obviousness jurisprudence because a motivation may be found *implicitly* in the prior art. We do not have a rigid test that requires a teaching to combine ... ”).

Furthermore, the KSR Court did not diminish the requirement for objective evidence of obviousness. *Id.* at 14 (“To facilitate review, this analysis should be made explicit. See *In re Kahn*, 441 F.3d 977, 988 (CA Fed. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.”); see also, *In re Lee*, 61 U.S.P.Q.2d 1430, 1436 (Fed. Cir. 2002) (holding that the factual inquiry whether to combine references must be thorough and searching, and that it must be based on *objective evidence of record*).)

When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). One cannot use hindsight reconstruction to pick and choose

among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Federal Circuit has warned that the Examiner must not “fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.” *In re Dembiczak*, F.3d 994, 999, 50 U.S.P.Q.2d 52 (Fed. Cir. 1999) (quoting *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983)).

It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 U.S.P.Q. 769, 779 (Fed. Cir. 1983); M.P.E.P. §2145. Moreover, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959); see M.P.E.P. §2143.01(VI). If the proposed modification or combination would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); see M.P.E.P. §2143.01(V).

Claims 1 and 3-7

As noted above, claims 1 and 3-7 were rejected under 35 U.S.C. §103(a) as being unpatentable over Uemiya et '381 in view of Butterworth et al. '507. Applicants believe that these claims are allowable over the cited references for at least the following reasons.

Uemiya et al. '381 discloses an optical element (13) including a light emitting element such as an LED or a light receiving element embedded within a waveguide (12) surrounded by a reflective cladding (11). As noted by the Examiner, this reference does not disclose a reflector cup embedded within the input end of the waveguide body. Thus, this reference does **not** disclose the following element of Applicants' claim 1: "**a reflector cup embedded within the input end of the body and partially surrounding the light source, the reflector cup having an opening that faces the output end of the body and being configured to reflect light in order to redirect light from the light source towards the output end of the body.**"

Butterworth et al. '507 discloses an LED (110) within a reflector cup (120) covered by an epoxy lens (24). There is no suggestion in this reference of any waveguide, and thus no suggestion or inference that the LED (110) could possibly be embedded within a waveguide. Similarly, there is no suggestion in Uemiya et al. '381 that a reflector cup could possibly be embedded within the waveguide (12).

However, the Examiner states on page 3 of the Office Action:

At the time of invention it would have been obvious to one skilled in the art to combine the teachings of Uemiya and Butterworth to produce a waveguide with an embedded light source and reflector cup. By embedding a light emitting diode described by Butterworth into a light guide as shown by Uemiya would align the light source to face towards the output end of the waveguide and similarly position the reflector cup of Butterworth to partially surround the light source and have an opening facing the output end of the waveguide. The motivation would have been to use an efficient light emitting diode as the light source for the waveguide assembly (Butterworth, col. 2, lines 1-3). Thus, it would have been obvious to combine waveguide with embedded light source of Uemiya with an [sic] light emitting diode with a reflector cup of Butterworth to produce the device as described in claim 1.

Applicants respectfully submit that the Examiner simply utilized hindsight in view of Applicants' teachings in order to combine the references to produce the

invention of claim 1, which is still impermissible according to post-KSR patent law. Specifically, in *KSR International Co. v. Teleflex Inc.*, No. 04-1350 (April 30, 2007), the Court reaffirmed that “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *Id.* at 14. As noted above, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Applicants assert that there would be absolutely no motivation to embed a reflector cup such as that shown in Butterworth et al. '507 within the waveguide (12) of Uemiya et al. '381 in view of the **reflective cladding** (11) that surrounds the waveguide (12). As shown in Fig. 2D of Uemiya et al. '381, such reflective cladding (11) could be made to surround the optical element (13b). However the reflective cladding is **not embedded within a waveguide** and it is not a “reflector cup” as claimed by Applicants. Thus, Uemiya et al. '381 actually **teaches away** from Applicants’ use of a reflector cup embedded within a waveguide as recited in claim 1 by surrounding its waveguide in reflective cladding. As noted above, it is improper to combine references where the references **teach away** from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 U.S.P.Q. 769, 779 (Fed. Cir. 1983); M.P.E.P. §2145.

For at least the above reasons, Applicants’ claim 1 is believed to be allowable over the cited references. Claims 3-7 are believed to be allowable as depending on an allowable base claim, and further in view of the novel and nonobvious combinations of elements disclosed therein. In addition, specifically regarding claim 3, the Examiner stated on page 3 of the Office Action that “Uemiya discloses the

surfaces of the waveguides to be half circles (Figs 6c and 9a). The Examiner notes that half circles are parabolic in shape and the waveguide is therefore a paraboloid.” Applicants respectfully disagree that half-circles or spheres are paraboloids. Regardless of the conventional definitions of the words “paraboloid” and “sphere” (including circle or half-circle), however, Applicants make a clear distinction between these words in the Specification. On page 6 of the Specification, Applicants state: “Figure 3A shows a perspective view of another embodiment of the present invention, in which the optical conduit is a paraboloid 301.” On page 8 of the Specifications, Applicants state (emphasis added):

A combination of different curvatures may also be used. For example, in Figure 4, an optical conduit 401 having 3 sections of differing curvature is shown in side view. **In the first section 403, the optical conduit has a spherical surface. In the second section 405, the curvature is parabolic.**

Thus, Applicants clearly indicate in the Specification that the parabolic shapes shown in Fig. 3A and the second section of Fig. 4, are **not** equivalent to the “spherical” shape as shown in the first section of Fig. 4, and thus the “paraboloid” claimed in Applicants’ claim 3 is **not** a sphere or half-circle. For at least this reason, Applicants assert that the Examiner has not provided a reference that discloses or suggests Applicants’ claim 3.

Claims 8, 12 and 13

As noted above, 8, 12 and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Son ‘234 in view of Uemiya et al. ‘381 and Butterworth et al. ‘507. Applicants believe that these claims are allowable over the cited references for at least the following reasons.

Similarly to claim 1, Uemiya et al. '381 does not disclose or suggest the following element which is included in both of Applicants' independent claims 8 and 13: "**a reflector cup embedded within the input end of the optical conduit and partially surrounding the light source, the reflector cup having an opening that faces the output end of the optical conduit and being configured to reflect light in order to redirect light from the light source towards the output end of the optical conduit.**" With the exception of using the term "optical conduit" rather than "body", this element is identical to that of Applicant's claim 1. As noted by the Examiner, Son '234 does not disclose or suggest an optical conduit with an embedded light source and reflector cup. However, on page 5 of the Office Action, the Examiner states: "As discussed above in claim 1, the combination of Uemiya and Butterworth disclose an optical conduit with an embedded light source and reflector cup as described in claims 8 and 13." For the same reasons discussed above relative to claim 1, Applicants assert that the combination of Uemiya et al. '381 and Butterworth et al. '507 (as well as Son '234) to produce Applicants' claimed invention as recited in claims 8 and 13 constitute impermissible hindsight. The arguments above regarding the allowability of claim 1 are herein renewed and applied to claims 8 and 13. Specifically, as noted above, there would be absolutely no motivation to embed a reflector cup such as that shown in Butterworth et al. '507 within the waveguide (12) of Uemiya et al. '381 in view of the **reflective cladding** (11) that surrounds the waveguide (12). As shown in Fig. 2D of Uemiya et al. '381, such reflective cladding (11) could be made to surround the optical element (13b). However such reflective cladding is **not embedded within an optical conduit** (waveguide) as claimed by Applicants. Thus, Uemiya et al. '381 actually **teaches**

away from Applicants' use of a reflector cup embedded within an optical conduit as recited in claims 8 and 13 by surrounding its waveguide in reflective cladding. Son '234 does nothing to make up for the deficiencies of Uemiya et al. '381 and Butterworth et al. '507. For at least these reasons, Applicant believes that claims 8 and 13 are allowable over the cited reference.

Claim 12 is believed to be allowable as depending from an allowable base claim, and further in view of the novel and non-obvious combination of elements disclosed therein. Claim 12 is also believed to be allowable for the same reasons discussed above relative to claim 3, i.e., that the "paraboloid" recited in claim 12 is **clearly not** disclosed by the half-circular shapes shown in Uemiya et al. '381.

Conclusion

Applicants believe that all of the claims pending in the application (claims 1, 3-8, 12 and 13) are allowable over the cited references. Therefore, Applicants respectfully request that the Examiner reconsider the application and grant an early allowance. Should the Examiner have any questions, Applicants' attorney may be contacted at the telephone number listed below.

Respectfully submitted,

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October 5, 2007


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